



- Drafts
- Pending
- Active
 - L4: (0) ("20020008655|" "20030179126|" "20030189511|" "20050128123|" "20050128124|" "3875929|" "49586...")
 - L5: (35) ("20020008655|" "20030179126|" "20030189511|" "20050128123|" "20050128124|" "3875929|" "495863...")
 - L6: (2894) (Motion or movement) same (sensing or sensor or detect or detecting or detection or d...)
 - L7: (173446) breathe or breath or breathing or respiration or respiratory...
 - L8: (205) L6 and L7
 - L9: (114) L8 and (radar)
 - L10: (134391) (antenna or array) same (movable or moving or tracking or scanning)
 - L11: (79) 9 and 10
 - L12: (785) ((342/22) or (342/28)).CCLS.
 - L13: (68814) (antenna or array) same (movable or moving or tracking)
 - L14: (292) 12 and 13
 - L16: (233) 14 and @ad<="20031212"
 - L17: (233) ((342/22) or (342/28) or (342/114) or (342/115) or (342/160) or (342/162) or (600/531...))
 - L18: (15) 17 and @ad<="20031212" end@pd>="20050914"

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- Saved
 - S1: (2) ("6909397") or ("20050128123").PN.
 - S2: (2692) ((Motion or movement) same (sensing or sensor or detect or detecting or detection or d...)
 - S3: (163671) breathe or breath or breathing or respire or respiration or respiratory...
 - S4: (178) S2 and S3
 - S5: (163671) breathe breath or breathing or respire or respiration or respiratory...
 - S7: (237) digital adj shaft same (encode or encoding or encoder)
 - S8: (1) S6 and S7
 - S9: (3429) digital same shaft same (encode or encoding or encoder)
 - S10: (1) S6 and S9
 - S6: (178) S2 and S5
 - S11: (150) S6 and @ad<="20031212"
 - S12: (412) (342/22).CCLS.
 - S13: (10) S5 and S12
 - S14: (2349) (342/22) or (342/28) or (342/114) or (342/115) or (342/160) or (342/162) or (600/534...)
 - S15: (1670) S14 and @ad<="20031212"
 - S16: (10) (US-2002008655-\$ or US-20050128123-\$ or US-20050128124-\$).did. or (US-3875929-\$ or US-...
 - S17: (4) S16 and ((scan or scanned or scanning or scanable) same antenna)
 - S18: (202405) absorber

Document ID	Serial No.	Pages	Title	Inventor	Category
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	Search-Terms	Total	USPAT	US-PCP	EPO	JPO	Derwa
1	340/554	212					
2	342/114	263					
3	342/115	316					
4	342/160	524					
5	342/162	285					
6	342/22	134					
7	342/28	382					
8	600/534	319					
9	(340/554 OR 342/160)	1408					

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BEST AVAILABLE COPY

SEARCH NOTES FOR EAST AND IEEE AND INSPEC AND IP.COM

SERIAL NUMBER

10735478

EAST SEARCH

EAST: search history attached

Search terms:

(Motion or movement) same (sensing or sensor or detect or detecting or detection or detector)

Microwave or radar or doppler

Scan or scanned or scanning or scanner

antenna

breathe or breath or breathing or respire or respiring or respiration or respiratory or ((exhale or exhaling) and (inhale or inhaling))

digital adj shaft same (encode or encoding or encoder)

IEEE SEARCH

Search terms:

(breathe <or> breath <or> breathing <or> respire <or> respiring <or> respiration <or> respiratory <or> exhale <or> exhaling <or> inhale <or> inhaling) <and> (motion <or> movement) <and> (sensing <or> sensor <or> detect <or> detecting <or> detection <or> detector) <and> (microwave <or> radar <or> doppler)

1. "Microprocessor-controlled automatic clutter-cancellation circuits for microwave systems to sense physiological movements remotely through the rubble", Chuang, H.; Chen, Y.; Chen, K. IMTC-90. 7th IEEE 13-15 Feb 1990 Ps:177-181.

2. **"Microwave system for the detection of trapped human beings"**, Aggelopoulos, E.; Karabetsos, E.; Uzunoglu, N.; Constantinou, P. Industrial Electronics, 1995. ISIE '95. Proceedings of the IEEE International Symposium on Vol 1,10-14 Jul1995 Ps:187-192
3. **"Microwave life-detection systems for searching human subjects under earthquake rubble or behind barrier"**, Kun-Mu Chen; Yong Huang; Jianping Zhang; Norman, A. Biomedical Engineering, IEEE TraNs on Vol 47, Issue 1, Jan 2000 Ps:105-114
4. **Using modified fetal monitor and signal processing to detect fetal breathing movement**
Foulquiere, K.; Karlsson, B.; Vilbergsson, G.; Berson, M. Ultrasonics Symposium, 2000 IEEE Volume 2, Oct 2000 Page(s):1391 - 1394 vol.2
5. **"A microwave radio for Doppler radar sensing of vital signs"**, Droitcour, A.; Lubecke, V.; Jianshan Lin; Boric-Lubecke, O. Microwave Symposium Digest, 2001 IEEE MTT-S International Vol 1, 2001 Page(s):175 - 178
6. **"Survivor search radar system for persons trapped under earthquake rubble"**, Arai, I. Microwave Conference, 2001. APMC 2001. 2001 Asia-Pacific 2001 Page(s):663 - 668 vol.2
7. **"0.25 μm CMOS and BiCMOS single-chip direct-conversion Doppler radars for remote sensing of vital signs"**, Droitcour, A.D.; et al Solid-State Circuits Conf, 2002. Digest of Technical Papers. ISSCC. 2002 IEEE Int'l Vol 1, 2002 Ps:348-349
8. **"10 GHz Doppler radar sensing of respiration and heart movement"**, Lubecke, O.B.; Ong, P.-W.; Lubecke, V.M. Bioengineering Conference, 2002. Proceedings of the IEEE 28th Annual Northeast 2002 Page(s):55 - 56
9. **"Range correlation effect on ISM band I/Q CMOS radar for non-contact vital signs sensing"**, Droitcour, A.D.; Boric-Lubecke, O.; Lubecke, V.M.; Lin, J.; Kovacs, G.T.A. Microwave Symposium Digest, 2003 IEEE MTT-S Int'l Vol 3, 8-13 June 2003 Ps:1945-1948
10. **"Wireless vital signal detection systems and its applications at 1.9GHz and 10GHz"**, Park, J.M.; Choi, D.H.; Park, S.O. Antennas and Propagation Society International Symposium, 2003. IEEE Volume 4, 22-27 June 2003 Page(s): 747 - 750
11. **Range correlation and I/Q performance benefits in single-chip silicon Doppler radars for noncontact cardiopulmonary monitoring**
Droitcour, A.D.; Boric-Lubecke, O.; Lubecke, V.M.; Lin, J.; Kovacs, G.T.A. Microwave Theory and Techniques, IEEE Transactions on Volume 52, Issue 3, March 2004 Page(s): 838 - 848
12. **On the operation mechanism of the microwave sensor for measuring human**

heartbeats and respirations
 Yimin Yin; Jian Qian; Junfeng Lu; Yong Huang
 Sensors, 2003. Proceedings of IEEE
 Volume 1, 22-24 Oct. 2003 Page(s): 565 - 568 Vol.1

13. "Non-invasive respiratory movement detection and monitoring of hidden humans using ultra wideband pulse radar", Ossberger, G.; et al, R. Joint UWBST & IWUWBS. 2004 Int'l Workshop on 18-21 May 2004 Ps: 395-399

No new relevant documents.

INSPEC SEARCH

Search history:

No.	Database	Search term	Info added since	Results	
1	INZZ	(breathe OR breath OR breathing OR respire OR respiring OR respiration OR respiratory OR exhale OR exhaling OR inhale OR inhaling) AND (motion OR movement) AND (sensing OR sensor OR detect OR detecting OR detection OR detector) AND (microwave OR radar OR doppler)	unrestricted	27	show titles

"RADAR flashlight for through the wall **detection** of humans", Greneker-E-F., Targets and Backgrounds: Characterization and Representation IV, Orlando, FL, USA, 13-15 April 1998. In: Proceedings-of-the-SPIE-The-International-Society-for-Optical-Engineering, vol.3375, p.280-5.

Search history:

No.	Database	Search term	Info added since	Results	
1	INZZ	(breathe OR breath OR breathing OR respire OR respiring OR respiration OR respiratory OR exhale OR exhaling OR inhale OR inhaling) AND (motion OR movement) AND (sensing OR sensor OR detect OR detecting OR detection OR detector) AND (microwave OR radar OR doppler)	unrestricted	27	show titles
2	INZZ	(breathe OR breath OR breathing OR respire OR	20050914	0	

		respiring OR respiration OR respiratory OR exhale OR exhaling OR inhale OR inhaling) AND (motion OR movement) AND (sensing OR sensor OR detect OR detecting OR detection OR detector) AND (microwave OR radar OR doppler)		
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IP.COM SEARCH

Search terms:

**(breathe OR breath OR breathing OR respire OR respiring OR respiration OR
respiratory OR exhale OR exhaling OR inhale OR inhaling) AND (motion OR
movement) AND (sensing OR sensor OR detect OR detecting OR detection OR
detector) AND (microwave OR radar OR doppler)**

Result # 1 Relevance:

[HomeRadar: Occupant Location Display for the Home](#)

02-Sep-2005 IPCOM000127574D English (United States)

This invention allows (e.g.) mom to keep track of where the kids and pets are in the home. UWB-RF wall-mounted radars are networked throughout the home using Powerline communications. Each UWB wall-mounted unit detects the location of occupants within its sensing range, ...

Result # 2 Relevance:

[ANALOG FEEDBACK ECHO CANCELLER](#)

2003-08-01 IPCOM000017302D English (United States)

Result # 3 Relevance:

[A History of the Information Processing Techniques Office of the Defense Advanced Research Projects Agency](#)

1992-10-01 IPCOM000127913D English (United States)

This report has been sponsored by the Computing Systems Technology Office and the Software and Intelligent Systems Technology Office of the Defense Advanced Research Projects Agency, and has been prepared under NASA-Ames Research Grant NAG 2-532, subcontract USC/PO 473764. ...

Result # 4 Relevance:

[Mechanism for child safety - motor vehicle back seat warning](#)

2005-08-22 IPCOM000127315D English (United States)

This disclosure presents mechanisms that could be included in motor vehicles to warn drivers if there is child in the back seat, when the driver is about to leave the car unattended.

No records matched your search.

PROQUEST SEARCH

Search terms:

(breathe OR breath OR breathing OR respire OR respiring OR respiration OR respiratory OR exhale OR exhaling OR inhale OR inhaling) AND (motion OR movement) AND (sensing OR sensor OR detect OR detecting OR detection OR detector) AND (microwave OR radar OR doppler)

Time Domain Offers SoldierVision Through-Wall Motion Detection

Defense Daily Potomac:May 17, 2005. Vol. 226, Iss. 32, p. 1

Seeing through walls

John DeGaspari. Mechanical Engineering New York:Oct 2001. Vol. 123, Iss. 10, p. 36 (1 pp.)

Radar to detect human presence TECHNOLOGY WORTH WATCHING :[London edition]

Harvey, Fiona. Financial Times London (UK):May 3, 2001. p. 13

Gadget sees through concrete 'Radar flashlight' detects criminals :[FINAL Edition]

Dan Vergano. USA TODAY McLean, Va.:Apr 26, 2001. p. D.08

Every beat of your heart...

Anjana Ahuja. The Times London (UK):Oct 15, 1997. p. Interface 6

Police radar detects criminals trying to hide insidebuildings

Sean Hargrave. Sunday Times London (UK):Sep 28, 1997. p. Money 11

Life detector (radar device that can detect heart and breathing movements)

Popular Science New York:Aug 1989. Vol. 235, Iss. 2, p. 59